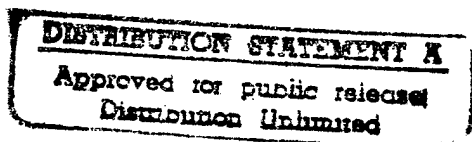

Logistics Management Institute

Telecommunications Volume
Estimates for the Defense
Transportation EDI Program

TR701T1

19970527 066

M. Augustine Creedon
Harold L. Frohman



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December 1996

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Chapter 1

Telecommunications Volume Estimates for the Defense Transportation EDI Program

INTRODUCTION

The United States Transportation Command (USTRANSCOM) developed the *Defense Transportation EDI Program Implementation Plan*. In it, USTRANSCOM identified four categories of electronic data interchange (EDI) opportunities and proposed operating concepts and schedules for implementing 15 EDI projects. Those projects call for the Defense transportation community to use 30 American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12 transaction sets to support more than 120 information exchanges. The transportation community needs to identify a communications network that is capable of supporting these information flows. First, however, it needs to estimate the volume of EDI traffic that could pass through the network. This report provides that estimate.

SUMMARY OF TELECOMMUNICATIONS VOLUMES

As Table 1-1 shows, the 15 EDI projects identified in the *Defense Transportation EDI Program Implementation Plan* are estimated to involve over 220 million transactions totaling 149 gigabytes of characters transmitted annually. Three of the fifteen projects—Movement Requests, Shipment Status, and Carrier Payment—account for more than 75 percent of the transactions and 68 percent of the characters transmitted.

The Appendix shows the EDI operating concept and estimated telecommunications volumes for each project.

Table 1-1. Defense Transportation Annual EDI Telecommunications Volumes

Project Title	Number of transactions per project	Number of characters in gigabytes per project
Guaranteed Traffic Tender	158,900	0.221
Voluntary/Negotiated Tenders	145,800	0.152
Movement Requests	75,324,000	13.443
Routing and Rating	2,000,000	0.160
Carrier Booking	6,175,050	0.594
Bill of Lading from Shipper to Finance Center	14,969,500	16.486
Bill of Lading from Shippers to Carriers, Consignees, and Others	21,525,000	25.830
Bill of Lading from Shipper to Clearance Authority	2,600,000	0.288
Bill of Lading from Shipper to POD	2,505,000	0.779
Bill of Lading from POD to Consignee	302,500	0.363
Shipment Status	68,130,000	52.653
Discrepancy Reporting	1,130,000	0.678
Invoice	2,630,000	1.665
Carrier Payment	30,500,000	36.600
Claims	TBD	TBD
Total	228,095,750	149.912

Note: Gigabyte = 1 billion bytes; POD = Point of debarkation; TBD = to be determined. Some estimates have been rounded off.

Appendix A

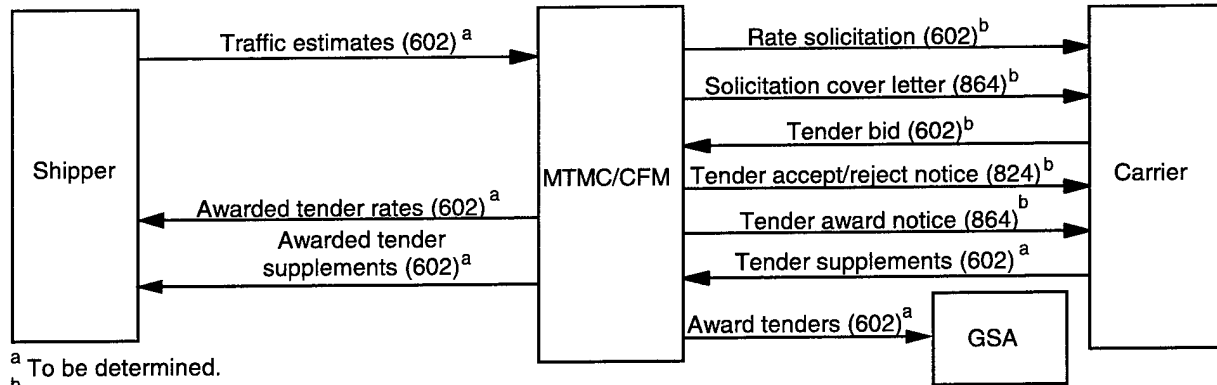
EDI Projects and Telecommunications Volumes

This Appendix shows the operating concept and telecommunications volumes for 15 Defense transportation electronic data interchange (EDI) projects. The figures are from the Defense Transportation EDI Program Implementation Plan.

Operating Concept and Telecommunications Volumes

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Figure A-1. Guaranteed Traffic Tender Operating Concept



Note: The numbers in parentheses indicate the ASC X12 transaction set that would support the transaction.

Table A-1. Guaranteed Traffic Tender Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Traffic estimates	Shipper	MTMC/CFM	602	9,000	1,000	24,658	9,000,000
Awarded tender rates	MTMC/CFM	Shipper	602	9,000	1,200	29,589	10,800,000
Awarded tender supplements	MTMC/CFM	Shipper	602	3,000	1,200	9,863	3,600,000
Rate solicitation	MTMC/CFM	Carriers	864	40,000	1,000	109,589	40,000,000
Solicitation cover letter	MTMC/CFM	Carriers	864	300	240,000	197,260	72,000,000
Tender bid	Carrier	MTMC/CFM	602	40,000	1,200	131,507	48,000,000
Tender accept/reject notice	MTMC/CFM	Carriers	824	45,000	500	61,644	22,500,000
Tender award notice	MTMC/CFM	Carriers	602	600	1,200	1,973	720,000
Tender supplements	Carrier	MTMC/CFM	602	3,000	1,200	9,863	3,600,000
Award tenders	MTMC/CFM	GSA	602	9,000	1,200	29,589	10,800,000
Total	--	--	--	158,900	--	--	221,020,000

Note: Total gigabytes per year = 0.221

Figure A-2. Voluntary/Negotiated Tenders Operating Concept

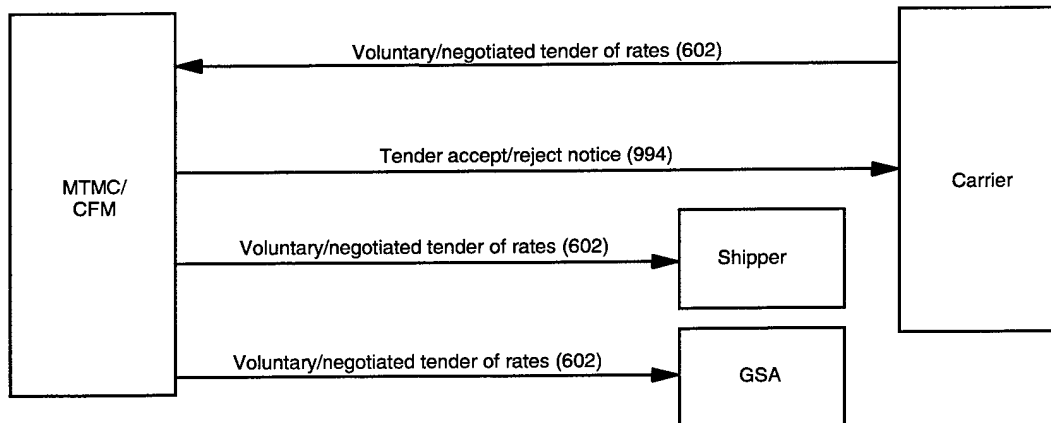


Table A-2. Voluntary/Negotiated Tenders Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Voluntary/negotiated tender of rates	Carrier	MTMC/CFM	602	21,900	1,200	72,000	26,280,000
Tender accept/reject notice	MTMC/CFM	Carrier	994	21,900	150	9,000	3,285,000
Voluntary/negotiated tender of rates	MTMC/CFM	Shipper	602	51,000	1,200	167,671	61,200,000
Voluntary/negotiated tender of rates	MTMC/CFM	GSA	602	51,000	1,200	167,671	61,200,000
Total	--	--	--	145,800	--	--	151,965,000

Note: Total gigabytes per year = 0.152

Figure A-3. Movement Requests Operating Concept

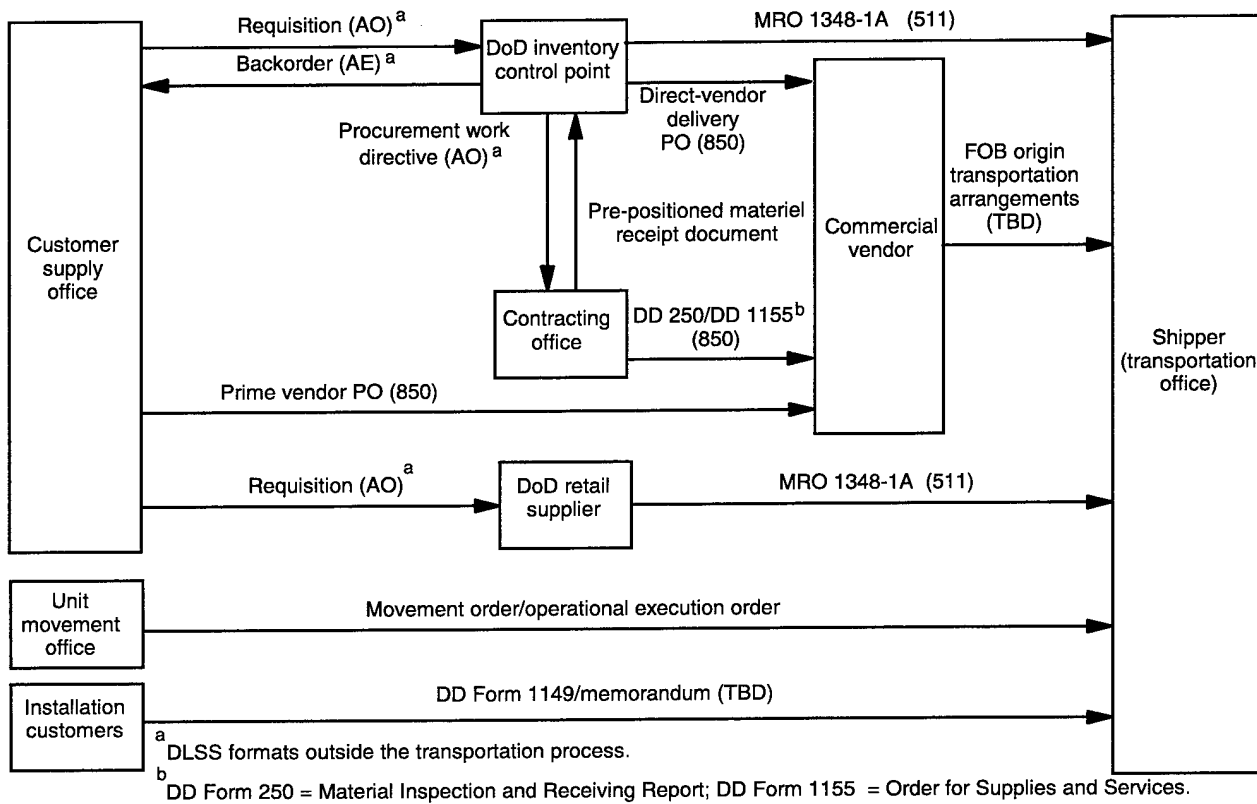


Table A-3. Movement Requests Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Requisition (AO) (1)	Customer supply office	DoD inventory control point	DLMS	36,500,000	80	8,000,000	2,920,000,000
Backorder (AE)	DoD inventory control point	Customer supply office	DLMS	8,532,000	80	1,870,027	682,560,000
Procurement work directive (AO)	DoD inventory control point	Contracting office	DLMS	3,634,000	80	796,493	290,720,000
Pre-positioned materiel receipt document	Contracting office	DoD inventory control point	DLMS	3,634,000	80	796,493	290,720,000
MRO 1348-1A	DoD inventory control point	Shipper (transportation office)	511	3,634,000	80	796,493	290,720,000
Direct-vendor delivery PO (10% of Requisitions)	DoD inventory control point	Commercial vendor	850	3,634,000	80	796,493	290,720,000
DD 250/DD 1155	Contracting office	Commercial vendor	850	3,634,000	80	796,493	290,720,000
FOB origin transportation arrangements	Commercial vendor	Shipper (transportation office)	TBD	1,817,000	1,200	5,973,699	2,180,400,000
Prime vendor PO	Customer supply office	Commercial vendor	850	805,000	1,200	2,646,575	966,000,000
Requisition (AO)	Customer supply office	DoD retail supplier	DLMS	4,000,000	80	876,712	320,000,000
MRO 1348-1A (15% of requisitions)	DoD retail supplier	Shipper (transportation office)	511	4,000,000	1,200	13,150,685	4,800,000,000
Movement order/operational executive order	Unit movement office	Shipper (transportation office)	TBD	1,000,000	80	219,178	80,000,000
DD 1149/memorandum	Installation customers	Shipper (transportation office)	TBD	500,000	80	109,589	40,000,000
Total	--	--	--	75,324,000	--	--	13,442,560,000

Note: Total gigabytes per year= 13.443

(1) Based on data supplied by the Defense Automated Addressing System (DAAS); DoD requests 100,000 items per day of which 33,000 are single line items and generate 1 GBL. 40% of the requisitions are assumed to be consolidated with an average of 5 requisitions per GBL. The remaining requisitions are a combination of single line items and consolidations.

Figure A-4. Routing and Rating Operating Concept

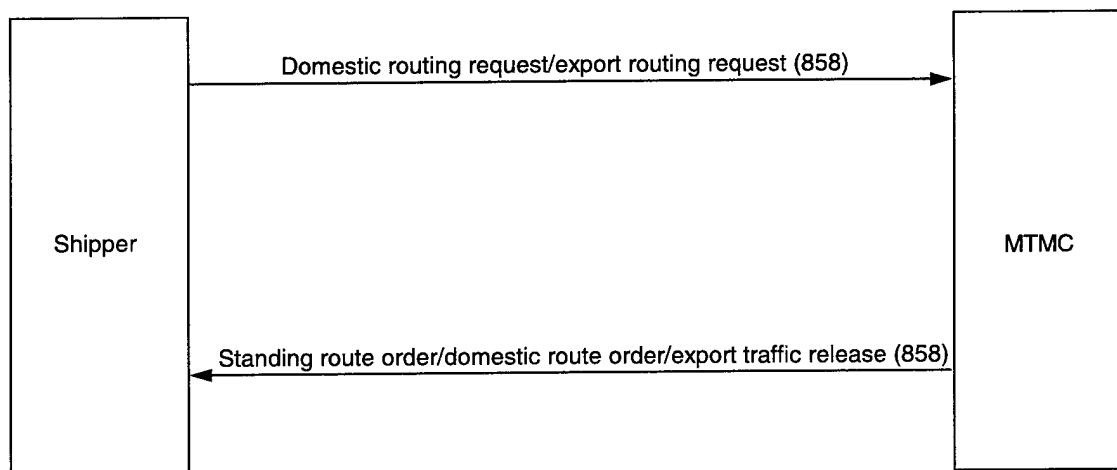


Table A-4. Routing and Rating Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Domestic routing request/export routing request	Shipper	MTMC	858	1,000,000	80	219,178	80,000,000
Standing route order/domestic route order/export traffic release	MTMC	Shipper	858	1,000,000	80	219,178	80,000,000
Total	--	--	--	2,000,000	--	--	160,000,000

Note: Total gigabytes per year = 0.160

Figure A-5. Carrier Booking Notification Operating Concept

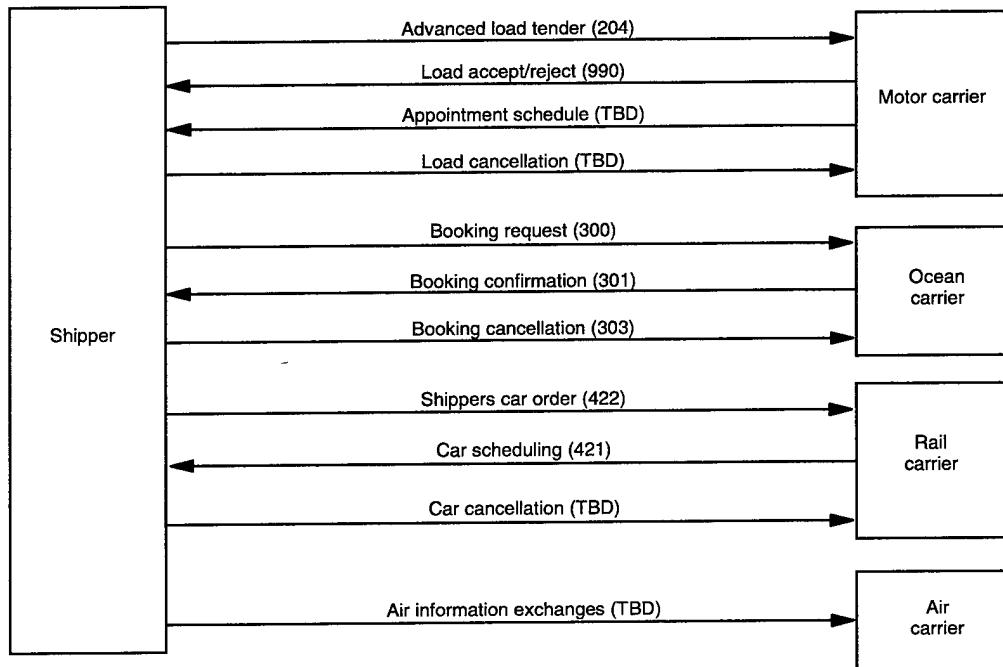
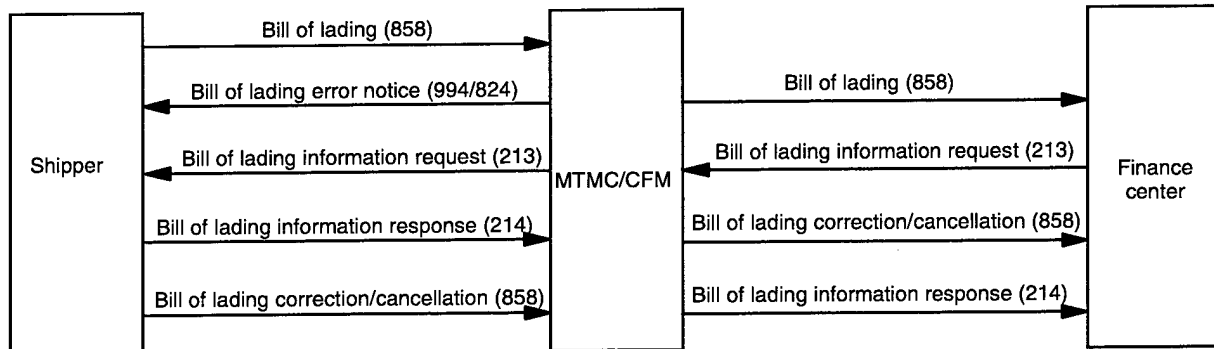


Table A-5. Carrier Booking Notification Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Advanced load tender	Shipper	Motor carrier	204	500,000	80	109,589	40,000,000
Load accept/reject	Motor carrier	Shipper	990	550,000	80	120,548	44,000,000
Appointment schedule	Motor carrier	Shipper	TBD	500,000	80	109,589	40,000,000
Load cancellation	Shipper	Motor carrier	TBD	50	80	11	4,000
Booking request	Shipper	Ocean carrier	300	1,000,000	80	219,178	80,000,000
Booking confirmation	Ocean carrier	Shipper	301	1,000,000	80	219,178	80,000,000
Booking cancellation	Shipper	Ocean carrier	303	100,000	80	21,918	8,000,000
Shippers car order	Shipper	Rail carrier	422	250,000	120	82,192	30,000,000
Car scheduling	Rail carrier	Shipper	421	250,000	120	82,192	30,000,000
Car cancellation	Shipper	Rail carrier	TBD	25,000	80	5,479	2,000,000
Air information exchanges	Shipper	Air carrier	TBD	2,000,000	120	657,534	240,000,000
Total	--	--	--	6,175,050	--	--	594,004,000

Note: Total gigabytes per year = 0.594

Figure A-6. Bill of Lading from Shipper to Finance Center Operating Concept



Note: Bill of lading includes both GBLs and CBLs.

Table A-6. Bill of Lading from Shipper to Finance Center Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Bill of lading (includes CBLs and PP GBLs)	Shipper	MTMC/CFM	858	6,500,000	1,200	21,369,863	7,800,000,000
Bill of lading	MTMC/CFM	Finance center	858	6,500,000	1,200	21,369,863	7,800,000,000
Bill of lading error notice	MTMC/CFM	Shipper	994/824	650,000	80	142,466	52,000,000
Bill of lading information request (1)	MTMC/CFM	Shipper	213	325,000	80	71,233	26,000,000
Bill of lading information request (1)	Finance center	MTMC/CFM	213	325,000	80	71,233	26,000,000
Bill of lading correction/cancellation (2)	Shipper	MTMC/CFM	858	325,000	1,200	1,068,493	390,000,000
Bill of lading correction/cancellation (2)	MTMC/CFM	Finance center	858	325,000	1,200	1,068,493	390,000,000
Bill of lading information response (3)	Shipper	MTMC/CFM	214	9,750	80	2,137	780,000
Bill of lading information response (3)	MTMC/CFM	Finance center	214	9,750	80	2,137	780,000
Total ¹	--	--	--	14,969,500	--	--	16,485,560,000

Note: Total gigabytes per year = 16.486

(1) Shippers will be requested to resubmit 5% of all bills of lading

(2) Assumes 5% of the bills of lading require correction notices or are cancelled

(3) Shippers will be unable to find 3% of requested bills of lading (via transaction set 213)

Figure A-7. Bill of Lading Information from Shippers to Carriers/Consignees/Others Operating Concept

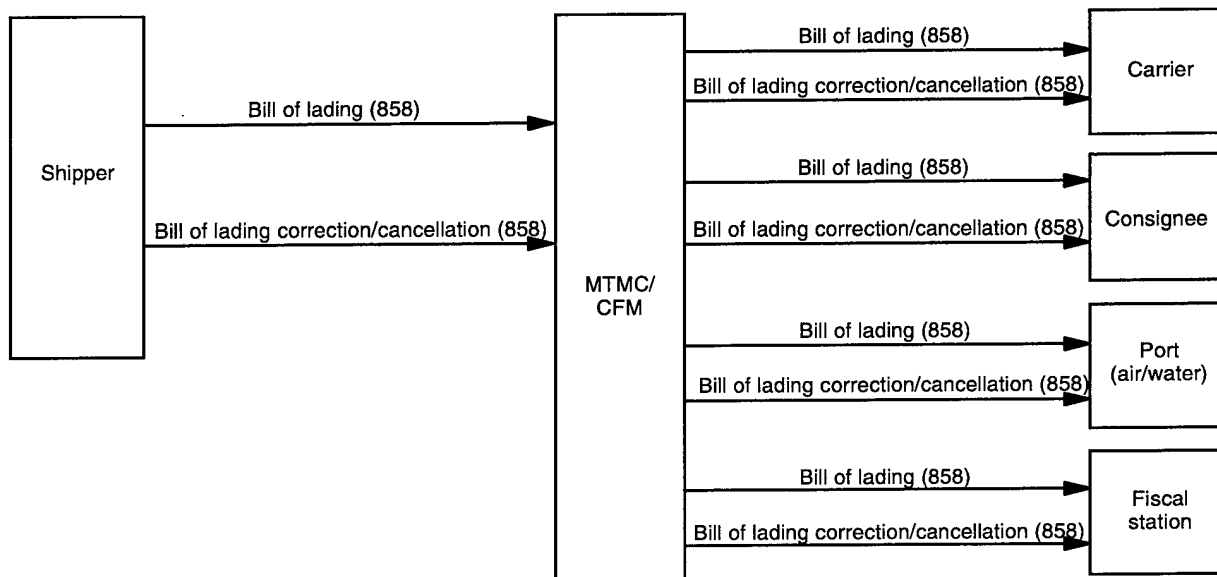
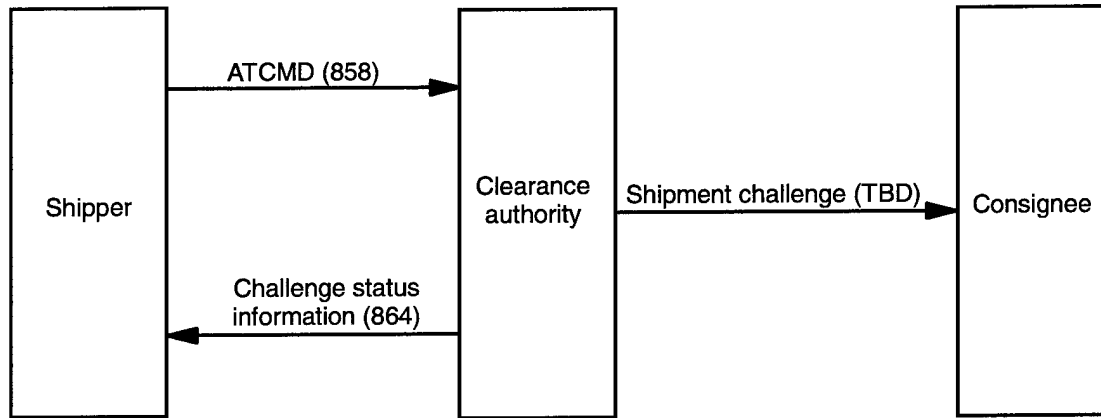


Table A-7. Bill of Lading from Shipper to Carriers, Consignees, and Others
Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Bill of lading	Shipper	MTMC/CFM	858	N/A	N/A	N/A	N/A
Bill of lading correction/cancellation	Shipper	MTMC/CFM	858	N/A	N/A	N/A	N/A
Bill of lading	MTMC/CFM	Carrier	858	6,500,000	1,200	21,369,863	1,800,000,000
Bill of lading correction/cancellation	MTMC/CFM	Carrier	858	325,000	1,200	1,068,493	390,000,000
Bill of lading	MTMC/CFM	Consignee	858	6,500,000	1,200	21,369,863	7,800,000,000
Bill of lading correction/cancellation	MTMC/CFM	Consignee	858	325,000	1,200	1,068,493	390,000,000
Bill of lading	MTMC/CFM	Port (air/water)	858	1,000,000	1,200	3,287,671	1,200,000,000
Bill of lading correction/cancellation	MTMC/CFM	Port (air/water)	858	50,000	1,200	164,384	60,000,000
Bill of lading	MTMC/CFM	Fiscal station	858	6,500,000	1,200	21,369,863	7,800,000,000
Bill of lading correction/cancellation	MTMC/CFM	Fiscal station	858	325,000	1,200	1,068,493	390,000,000
Total	--	--	--	21,525,000	--	--	25,830,000,000

Note: Total gigabytes per year = 25.830

Figure A-8. Bill of Lading Information from Shipper to Clearance Authority Operating Concept



Note: Shipper can be located in CONUS or OCONUS.

Table A-8. Bill of Lading from Shipper to Clearance Authority Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
ATCMD	Shipper	Clearance authority	858	2,000,000	120	657,534	240,000,000
Shipment challenge	Clearance authority	Consignee	TBD	200,000	80	43,836	16,000,000
Challenge status information	Clearance authority	Shipper	864	400,000	80	87,671	32,000,000
Total	--	--	--	2,600,000	--	--	288,000,000

Note: Total gigabytes per year = 0.288

Figure A-9. Bill of Lading Information from Shipper to POD Operating Concept

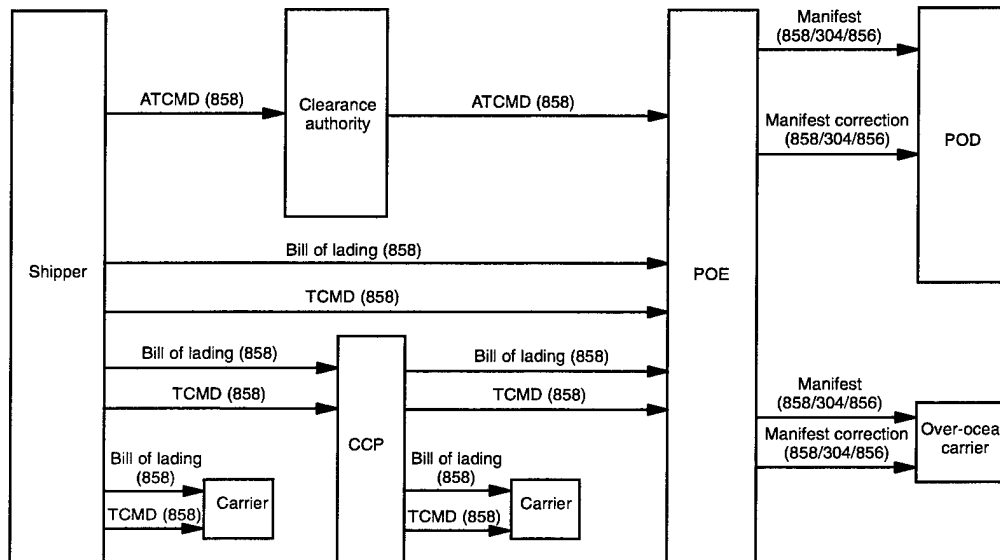


Table A-9. Bill of Lading from Shipper to POD Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
ATCMD	Shipper	Clearance authority	858	N/A	N/A	N/A	N/A
ATCMD	Clearance authority	POE	858	1,800,000	80	394,521	144,000,000
Bill of lading	Shipper	POE	858	N/A	N/A	N/A	N/A
TCMD	Shipper	POE	858	N/A	N/A	N/A	N/A
Bill of lading	Shipper	CCP	858	150,000	1,200	493,151	180,000,000
TCMD	Shipper	CCP	858	150,000	120	49,315	18,000,000
Bill of lading	CCP	POE	858	30,000	1,200	98,630	36,000,000
TCMD	CCP	POE	858	30,000	120	9,863	3,600,000
Bill of lading	Shipper	Carrier	858	150,000	1,200	493,151	180,000,000
TCMD	Shipper	Carrier	858	N/A	N/A	N/A	N/A
Bill of lading	CCP	Carrier	858	15,000	1,200	49,315	18,000,000
TCMD	CCP	Carrier	858	15,000	120	4,932	1,800,000
Manifest	POE	POD	858/304/856	75,000	1,200	246,575	90,000,000
Manifest correction	POE	POD	858/304/856	7,500	1,200	24,658	9,000,000
Manifest	POE	Over-ocean carrier	858/304/856	75,000	1,200	246,575	90,000,000
Manifest correction	POE	Over-ocean carrier	858/304/856	7,500	1,200	24,658	9,000,000
Total	--	--	--	2,505,000	--	--	779,400,000

Note: Total gigabytes per year = 0.779

Figure A-10. Bill of Lading Information from POD to Consignee Operating Concept

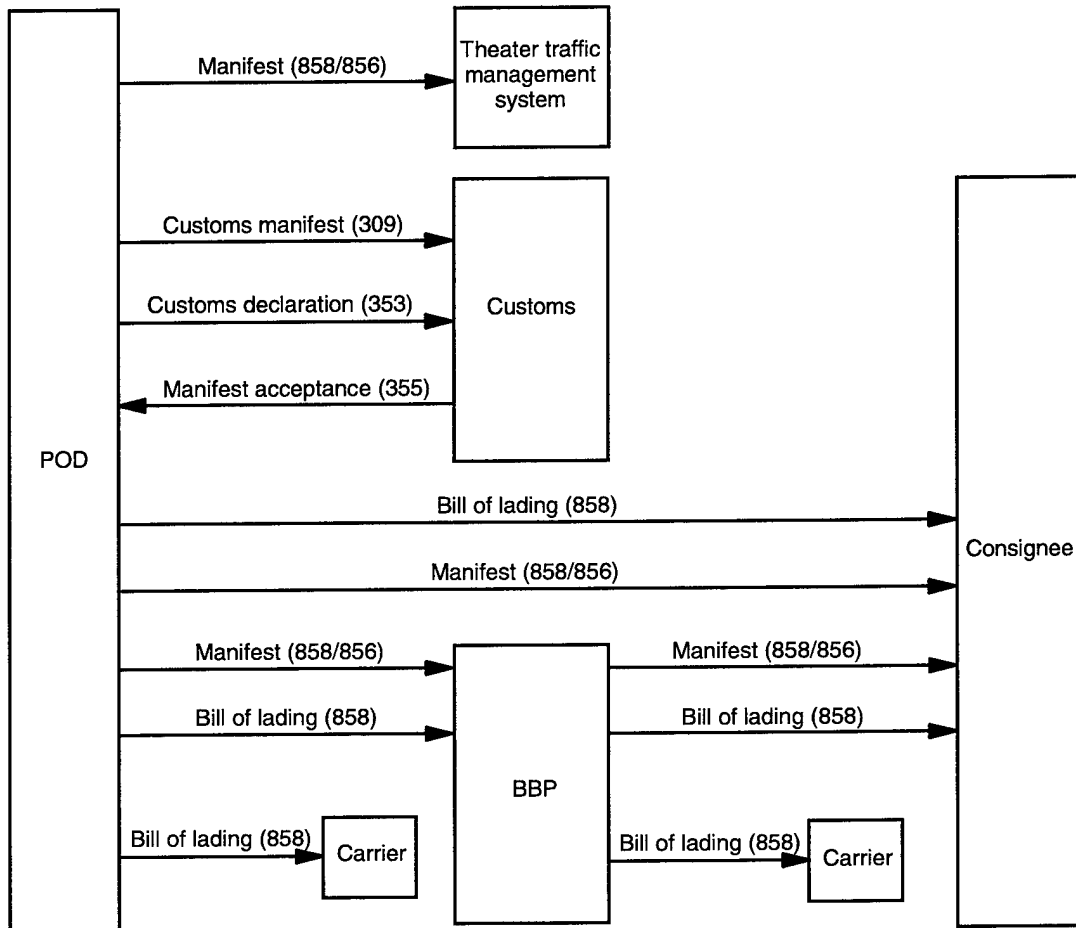
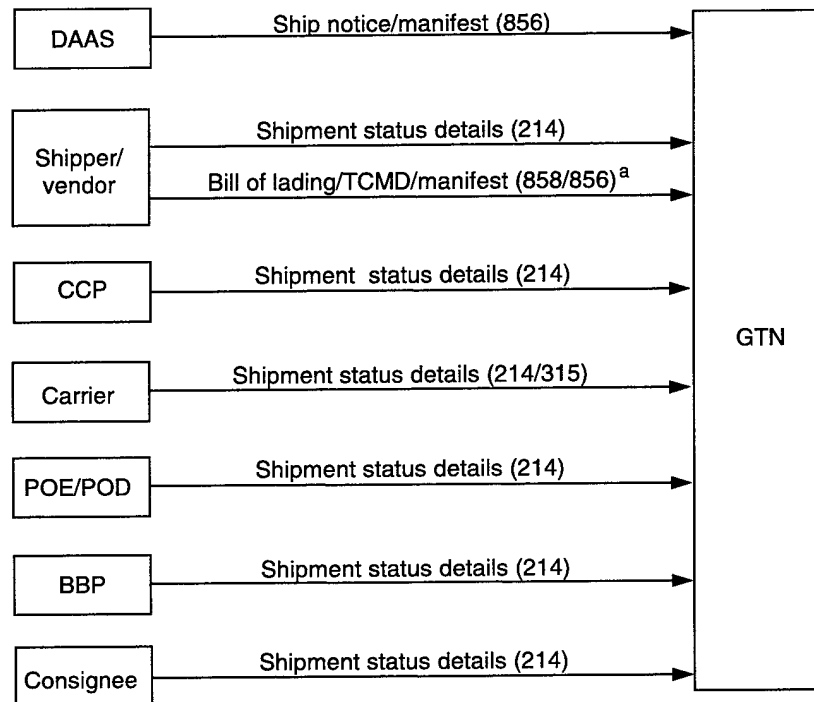


Table A-10. Bill of Lading from POD to Consignee Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Manifest	POD	Theater traffic management system	858/856	30,000	1,200	98,630	36,000,000
Customs manifest	POD	Customs	309	30,000	1,200	98,630	36,000,000
Customs declaration	POD	Customs	353	75,000	1,200	246,575	90,000,000
Manifest acceptance	Customs	POD	355	75,000	1,200	246,575	90,000,000
Bill of lading	POD	Consignee	858	45,000	1,200	147,945	54,000,000
Manifest	POD	Consignee	858/856	30,000	1,200	98,630	36,000,000
Bill of lading	POD	BBP	858	N/A	N/A	N/A	N/A
Manifest	POD	BBP	858/856	5,000	1,200	16,438	6,000,000
Bill of lading	BBP	Consignee	858	2,500	1,200	8,219	3,000,000
Manifest	BBP	Consignee	858/856	2,500	1,200	8,219	3,000,000
Bill of lading	POD	Carrier	858	2,500	1,200	8,219	3,000,000
Bill of lading	BBP	Carrier	858	5,000	1,200	16,438	6,000,000
Total	--	--	--	302,500	--	--	363,000,000

Note: Total gigabytes per year 0.363

Figure A-11. Shipment Status Operating Concept



^a Shipment record from shipper to GTN only in the case of unit moves and vendor shipments

Table A-11. Shipment Status Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Shipment notice/manifest (1)	DAAS	GTN	858/856	40,000,000	1,200	131,506,849	48,000,000,000
Shipment status details (2)	Shipper/vendor	GTN	214	6,500,000	80	1,424,658	520,000,000
Bill of lading/TCMD/manifest (3)	Shipper/vendor	GTN	858/856	2,145,000	1,200	7,052,055	2,574,000,000
Shipment status details (4)	CCP	GTN	214	30,000	80	6,575	2,400,000
Shipment status details (5)	Carrier	GTN	214/315	8,645,000	80	1,894,795	691,600,000
Shipment status details (6)	POE/POD	GTN	214	4,290,000	80	940,274	343,200,000
Shipment status details	BBP	GTN	214	20,000	80	4,384	1,600,000
Shipment status details (7)	Consignee	GTN	214	6,500,000	80	1,424,658	520,000,000
Total	--	--	--	68,130,000	--	--	52,652,800,000

Note: Total gigabytes per year =52.653

(1) Based on requisition (AO) and MRO

(2) Shippers will transmit one status message for each bill of lading (worst case scenario)

(3) 33% of all shipments are estimated to move OCONUS. 6,500,000 x 33% = 2,145,000 (worst case scenario)

(4) New Cumberland and Sharpe Defense Depots

(5) Bill of lading status plus bill of lading/TCMD/manifest status

(6) One status message at both the POE and the POD for each OCONUS shipment (see footnote #3)

(7) Consignee will transmit one status message for each bill of lading indicating shipment received.

Figure A-12. Discrepancy Reporting Operating Concept

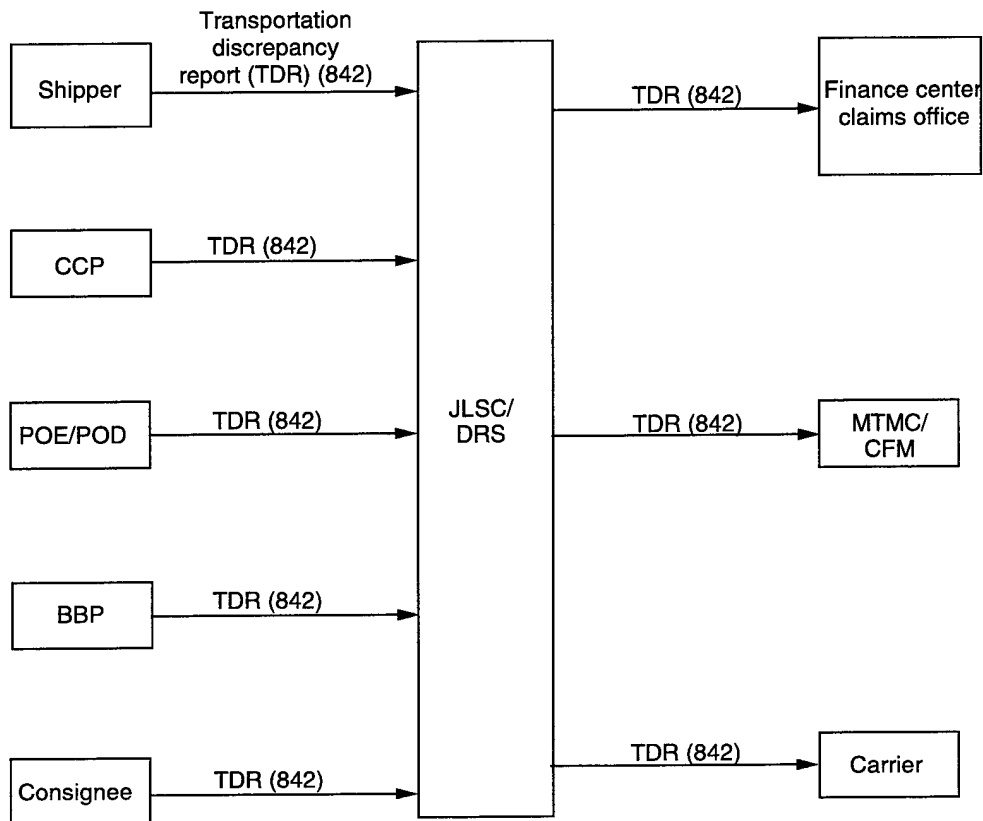


Table A-12. Discrepancy Reporting Telecommunication Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Transportation discrepancy report (TDR)	Shipper	JLSC/DRS	842	350,000	600	575,342	210,000,000
(TDR)	CCP	JLSC/DRS	842	50,000	600	82,192	30,000,000
TDR	POE/POD	JLSC/DRS	842	20,000	600	32,877	12,000,000
TDR	BBP	JLSC/DRS	842	10,000	600	16,438	6,000,000
TDR	Consignee	JLSC/DRS	842	50,000	600	82,192	30,000,000
TDR	Finance center claims office	JLSC/DRS	842	150,000	600	246,575	90,000,000
TDR	MTMC/CFM	JLSC/DRS	842	350,000	600	575,342	210,000,000
TDR	Carrier	JLSC/DRS	842	150,000	600	246,575	90,000,000
Total	--	--	--	1,130,000	--	--	678,000,000

Note: Total gigabytes per year = 0.678

Figure A-13. Invoice Operating Concept

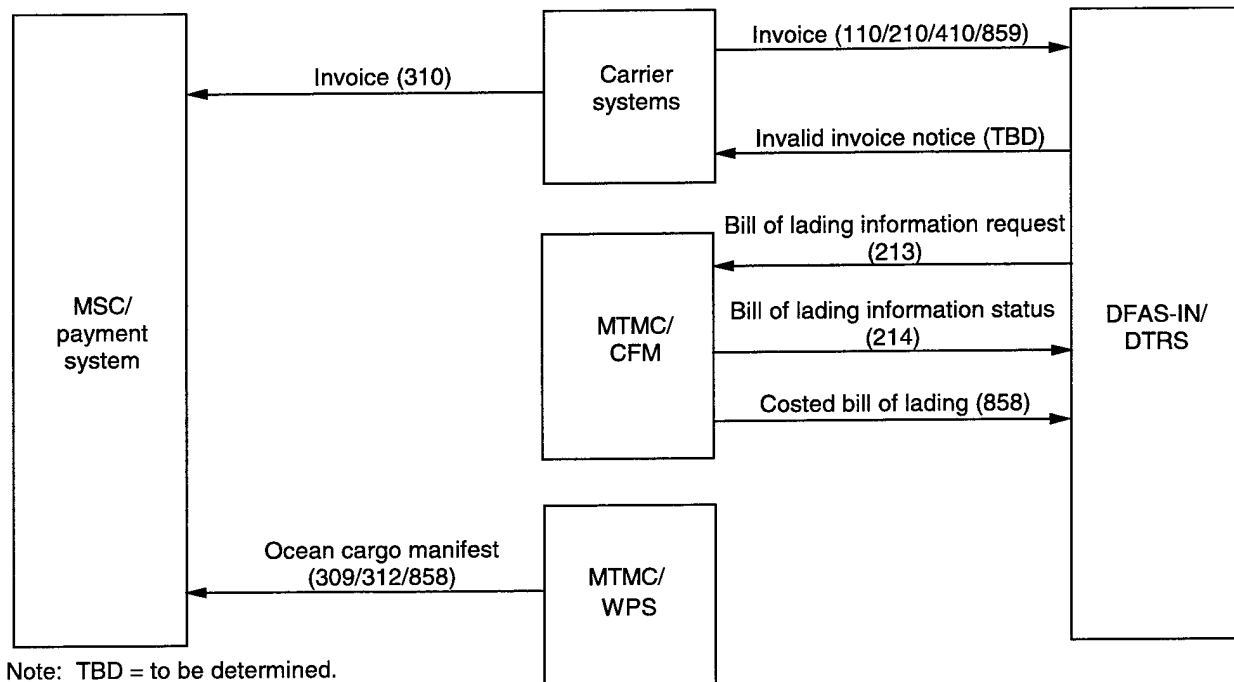


Table A-13. Invoice Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Ocean cargo manifest	MTMC/WPS	MSC/payment system	309/312/858	500,000	1,200	1,643,836	600,000,000
Invoice	Carrier systems	DFAS-IN/DTRS	110/210/410/859	2,000,000	500	2,739,726	1,000,000,000
Invalid invoice notice	DFAS-IN/DTRS	Carrier systems	TBD	100,000	500	136,986	50,000,000
Bill of lading information request	DFAS-IN/DTRS	MTMC/CFM	213	*	*	*	*
Bill of lading information status	MTMC/CFM	DFAS-IN/DTRS	214	*	*	*	*
Costed bill of lading	MTMC/CFM	DFAS-IN/DTRS	858	*	*	*	*
Ocean cargo invoice	Carrier systems	MSC/payment system	310	30,000	500	41,096	15,000,000
Total	--	--	--	2,630,000	--	--	1,665,000,000

*See Table A-6 in this appendix.

Note: Total gigabytes per year = 1.665

Figure A-14. Carrier Payment Operating Concept

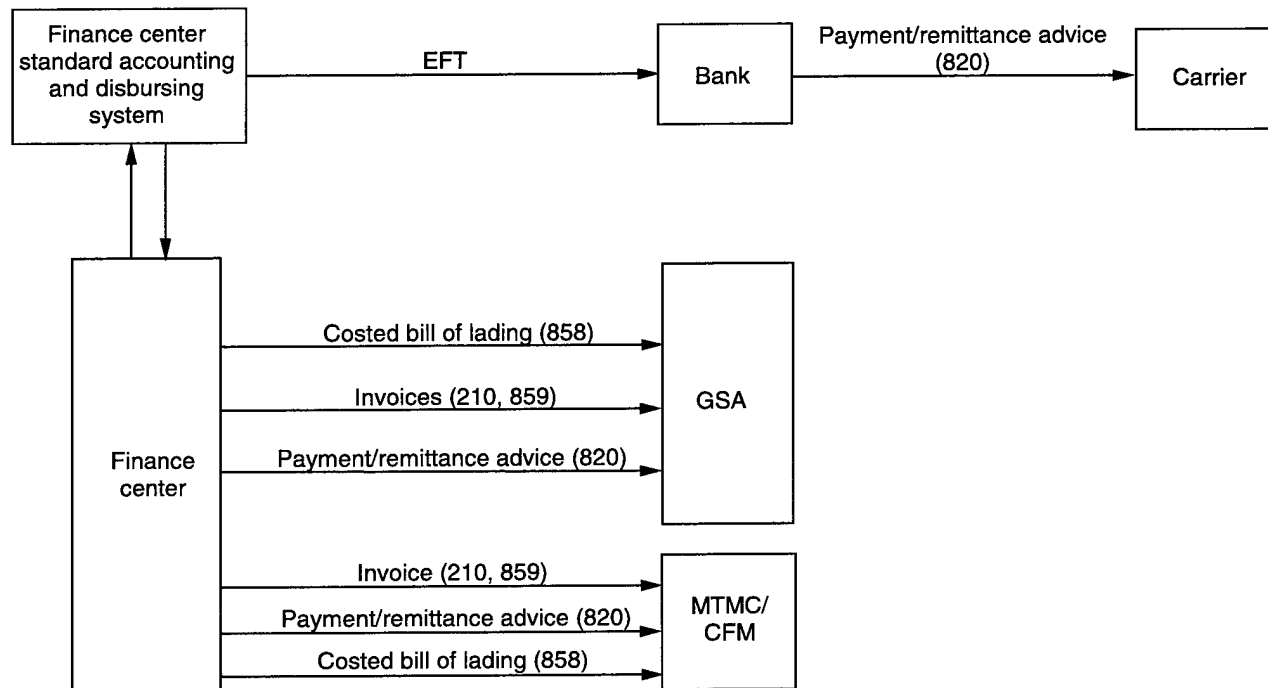


Table A-14. Carrier Payment Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
Electronic funds transfer	Finance center standard accounting & disbursing system	Bank	EFT	6,500,000	1,200	21,369,863	7,800,000,000
Payment/remittance advice	Bank	Carrier	820	6,500,000	1,200	21,369,863	7,800,000,000
Costed bill of lading	Finance center	GSA	858	1,500,000	1,200	4,931,507	1,800,000,000
Invoices	Finance center	GSA	210/859	1,500,000	1,200	4,931,507	1,800,000,000
Payment/remittance advice	Finance center	GSA	820	1,500,000	1,200	4,931,507	1,800,000,000
Invoices	Finance center	MTMC/CFM	210/859	6,500,000	1,200	21,369,863	7,800,000,000
Payment/remittance advice	Finance center	MTMC/CFM	820	6,500,000	1,200	21,369,863	7,800,000,000
Costed bill of lading	Finance center	MTMC/CFM	858	N/A	N/A	N/A	N/A
Total	--	--	--	30,500,000	--	--	36,600,000,000

Note: Total gigabytes per year= 36.600

Figure A-15. Claims Operating Concept

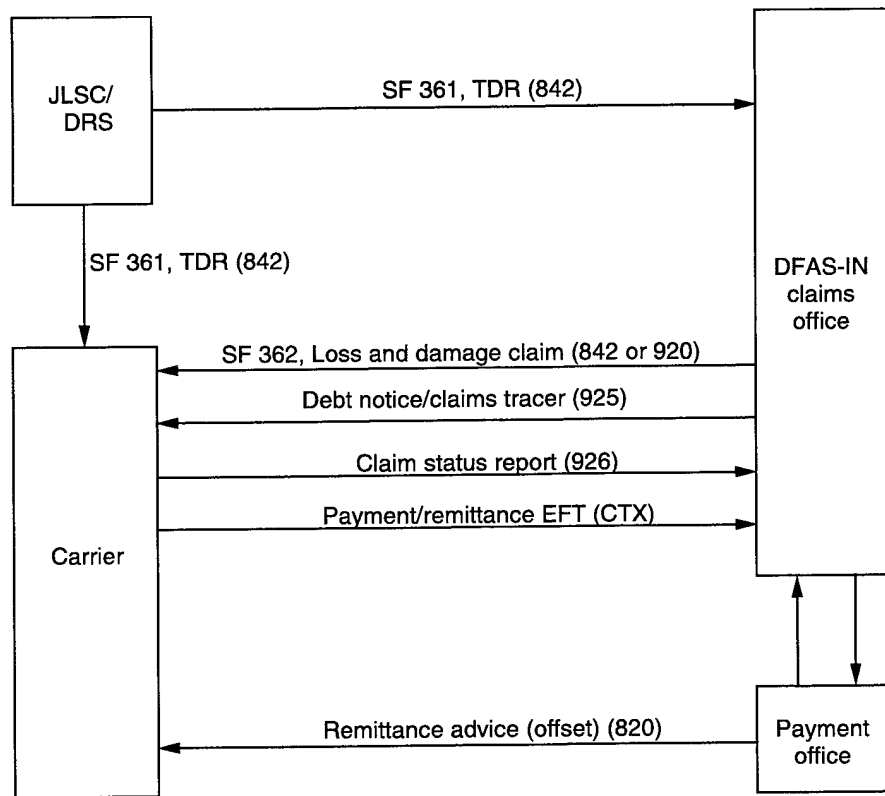


Table A-15. Claims Telecommunications Volumes

Information flow	Data Flow		ASC X12 transaction set	Number of transactions per year	Number of characters per transaction	Number of characters per day	Number of characters per year
	Origin	Destination					
SF 361, TDR (842)	JLSC/DRS	DFAS-IN claims office	842	TBD	600	TBD	TBD
SF 361, TDR (842)	JLSC/DRS	Carrier	842	TBD	600	TBD	TBD
SF 362, Loss and damage claim	DFAS-IN claims office	Carrier	842/920	TBD	600	TBD	TBD
Debt notice/claims tracer	DFAS-IN claims office	Carrier	925	TBD	600	TBD	TBD
Claim status report	Carrier	DFAS-IN claims office	926	TBD	600	TBD	TBD
Payment/remittance EFT	Carrier	DFAS-IN claims office	CTX	TBD	TBD	TBD	TBD
Remittance advice (offset)	Payment office	Carrier	820	TBD	500	TBD	TBD
Total	--	--	--	--	--	--	--

Note: Total gigabytes per year = TBD

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